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Remarks

The Office Action mailed September 25, 2003, and made final, has been carefully reviewed and the following remarks have been made in consequence thereof.

Claims 1, 3-7 and 9-14 are now pending in this application. Claims 1, 3-7 and 9-12 stand rejected. Claims 2 and 8 have been canceled. Claim 13 is newly added.

The rejection of Claims 1, 3-7 and 9-12 under 35 U.S.C. § 103 as being unpatentable over the combined teachings of Applicant's Figure 3 as set forth in Figure 3 in view of Six et al. (US 4,519,771) is respectfully traversed.

Applicant has admitted that Figure 3 is a schematic block diagram of a known ignition system 70 for range 10. Ignition system 70 includes a power supply 42 feeding a junction box 72, an ignition module 56, and a burner 22. Junction box 72 includes a "line" or phase conductor 74, a neutral conductor 76, and a ground conductor 78. Ignition module 56 includes first and second inputs 80, 82 and an output 84 for sending signals to an igniter 44. First input 80 of igniter module 80 is coupled to phase or line conductor 74, and second input 82 of ignition module 56 is coupled to neutral conductor 76 of the electrical system. Burner 22 is connected to electrical system ground conductor 78, and ground conductor 78 is connected to junction box 72 and tied to neutral conductor 76 extending from junction box 72. Junction box 72 receives power from power supply 42, and line or phase conductor 74 supplies power to ignition module 56 through first input 80. Ignition module 56 supplies power to igniter 44 through a conductor 86, and igniter 44 ignites fuel delivered to burner 22. Once ignited, the burner flame acts as a diode for flame detection circuitry of ignition module 56, and igniter functions as an electrode for passing current through the burner flame and across gap 54. The current passes through burner 22 to ground conductor 78, which is connected to neutral conductor 76 through junction

box 76. Current flows through neutral conductor 76 to ignition module second input 82 for feedback control of igniter 44 in response to current signals received at ignition module second input 82, and igniter 44 is activated as necessary for re-ignition of the burner flame. The return path of current from burner 22 to ignition module 56 is illustrated by arrows in Figure 3. Notably, the applicant's Figure 3 does not show the use of an isolation transformer.

Six et al. describes a method for detecting the operation of a burner using a flame detection system. The detection system includes an isolation transformer (6) having two inputs and two outputs. A first input is electrically coupled to a generator (7) through a matching resistor (8) which provides a relative discoupling between the generator and the isolation transformer. The second isolation transformer input is electrically coupled to an AC source (5). The first isolation transformer output is electrically coupled to a semiconductor device (19), and the second isolation transformer output is electrically coupled to a burner (1) through a ground conductor (3). Six et al. also describe an ignition module (25) having two inputs and two outputs. The two inputs are electrically coupled to AC inputs (4, 5) respectively. A first output (26) is electrically coupled to an electrode (2) through a spark trap (29). The second output (27) is electrically coupled to the burner through the ground conductor.

Six et al. further describe that since the circuit uses a generator (7) to provide a voltage to the transformer, the transformer can be made substantially smaller because the input to the transformer is approximately 200kHz instead of 50Hz which is provided from a typical AC source. Furthermore, the insulation surrounding the two windings (6a, 6b) is simpler since fewer turns are required than a transformer supplied from the typical AC source. Accordingly, Six et al. describe a transformer operating a high frequency to facilitate reducing costs and reduce operating power of the transformer.

Therefore, Six et al. do not describe that an isolation transformer between the ignition module and the AC source which would increase costs of the circuit and also increase the

operating power required by the circuit. Furthermore, Six et al. do not describe that an input of the isolation transformer is coupled to ground and to the burner.

Applicant respectfully submits that the Section 103 rejection of the presently pending claims is not a proper rejection. Specifically, neither the Applicant's Figure 3 nor Six et al., alone or in combination, describe or suggest an isolation transformer between the ignition module and the AC source. Moreover, Six et al. do not provide any incentive for making the claimed invention. In addition, the rejection appears to be based upon improperly using the specification of the present application as a template, and then improperly picking and choosing various features from the cited patent in an attempt to reconstruct the structures recited in the presently pending claims. For these reasons, Applicant respectfully requests that the Section 103 rejection be withdrawn.

Moreover, obviousness cannot be established by merely suggesting that it would have been obvious to one of ordinary skill in the art to modify Applicant's Figure 3 according to the teachings of Six et al. More specifically, it is respectfully submitted that a prima facie case of obviousness has not been established. As explained by the Federal Circuit, "to establish obviousness based on a combination of the elements disclosed in the prior art, there must be some motivation, suggestion or teaching of the desirability of making the specific combination that was made by the applicant." In re Kotzab, 54 USPQ2d 1308, 1316 (Fed. Cir. 2000). MPEP 2143.01.

Moreover, the Federal Circuit has determined that:

> [I]t is impermissible to use the claimed invention as an instruction manual or "template" to piece together the teachings of the prior art so that the claimed invention is rendered obvious. This court has previously stated that "[o]ne cannot use hindsight reconstruction to pick and choose among isolated disclosures in the prior art to deprecate the claimed invention."

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In re Fitch, 23 USPQ2d 1780, 1784 (Fed. Cir. 1992). Further, under Section 103, "it is impermissible . . . to pick and choose from any one reference only so much of it as will support a given position, to the exclusion of other parts necessary to the full appreciation of what such reference fairly suggests to one of ordinary skill in the art." In re Wesslau, 147 USPQ 391, 393 (CCPA 1965). Rather, there must be some suggestion, outside of Applicant's disclosure, in the prior art to combine such references, and a reasonable expectation of success must be both found in the prior art, and not based on Applicant's disclosure. In re Vaeck, 20 U.S.P.Q.2d 1436 (Fed. Cir. 1991). In the present case, neither a suggestion nor motivation to combine the cited art, nor any reasonable expectation of success has been shown.

Although it is asserted within the Office Action that Applicant's Figure 3 teaches the present invention except for disclosing an isolation transformer and the details of this transformer, and that Six et al. discloses an isolation transformer wherein the isolation transformer is arranged to isolate the part of the circuit comprising the burner and igniter from the AC source, no motivation or suggestion to combine the cited art has been shown. Furthermore, Applicant is not claiming an isolation transformer between the burner/ igniter and the AC source. Rather, Applicant is claiming an isolation transformer between the AC source and the ignition module. Since there is no teaching nor suggestion in the cited art for the claimed combination, the Section 103 rejection appears to be based on a hindsight reconstruction in which isolated disclosures have been picked and chosen in an attempt to deprecate the present invention. Of course, such a combination is impermissible, and for this reason alone, Applicant respectfully requests that the Section 103 rejection of Claims 1-12 be withdrawn.

Further, and to the extent understood, no combination of Applicant's Figure 3 and Six et al., describes or suggests the claimed combination, and as such, the presently pending claims are patentably distinguishable from the cited combination. Specifically, Claim 1 recites a method for installing an ignition module for a flame burner to an electrical system, the electrical system including a phase conductor, a neutral conductor and a ground conductor, the ignition module including first and second inputs and a single output, wherein the method includes "connecting

the phase conductor to the first input of the ignition module... connecting the neutral conductor to the second input of the ignition module...connecting a ground conductor between the neutral conductor and a burner...and connecting the single output to an igniter".

Neither Applicant's Figure 3 nor Six et al, considered alone or in combination, describe or suggest a method the method recited in Claim 1. Moreover, neither Applicant's Figure 3 nor Six et al, considered alone or in combination, describe or suggest an ignition module that includes first and second inputs and a single output, wherein the phase conductor is connected to the first input, the neutral conductor is connected to the second input, and a ground conductor is connected between the neutral conductor and a burner, and a single output is coupled to the igniter. Rather, and in contrast of the present invention, Applicant's Figure 3 illustrates the neutral conductor is connected only to the ignition module and is not grounded, and Six et al. describe that the ignition module includes two inputs and two outputs wherein the first output is input to the igniter, and the second output is grounded. Furthermore, Applicant respectfully submits that it would not be obvious to add a second transformer to Six et al. without increasing the cost of the device, nor would it be obvious to remove the existing transformer (6) without redesigning the detector which would also increase the cost, since Six et al. teach a transformer operating a high frequency in the detector side of the circuit only facilitates reducing costs and reducing an operating power of the transformer. Since, Six et al. do not describe that the input to the ignition module is grounded, nor does Six et al. describe a single output from the ignition module which is electrically connected to the igniter, Claim 1 is patentable over Applicant's Figure 3 in view of Six et al.

Claims 3-4 depend from independent Claim 1. When the recitations of Claims 3-4 are considered in combination with the recitations of Claim 1, Applicant respectfully submits that dependent Claims 3-4 are also patentable over Applicant's Figure 3 in view of Six et al.

Claim 5 recites a method for installing an ignition module for a gas-fired burner to an isolation transformer of an electrical system, the isolation transformer including a primary

winding and a secondary winding, the electrical system including a phase conductor, a neutral conductor and a ground conductor, the burner connected to the ground conductor, the ignition module including first and second inputs and at least one output. The method includes "connecting the transformer secondary winding to the first input of the ignition module...connecting the transformer secondary winding to the ground conductor...and connecting the second input of the ignition module to the ground conductor".

Neither Applicant's Figure 3 nor Six et al, considered alone or in combination, describe or suggest a method the method recited in Claim 5. Moreover, neither Applicant's Figure 3 nor Six et al, considered alone or in combination, describe or suggest a method that includes connecting a transformer secondary winding to a ground conductor and connecting the second input of an ignition module to the ground conductor.

Rather, and in contrast of the present invention, Applicant's Figure 3 illustrates the neutral conductor is connected only to the ignition module and is not grounded, and Six et al. describe that neither input to the ignition module is connected to ground. Furthermore, Applicant respectfully submits that it would not be obvious to add a second transformer to Six et al. without increasing the cost of the device, nor would it be obvious to remove the existing transformer (6) without redesigning the detector which would also increase the cost, since Six et al. teach a transformer operating a high frequency in the detector side of the circuit only facilitates reducing costs and reducing an operating power of the transformer. Since, Six et al. do not describe that the input to the ignition module is grounded, nor does Six et al. describe a single output from the ignition module which is electrically connected to the igniter, Claim 1 is patentable over Applicant's Figure 3 in view of Six et al.

Claim 6 depends from independent Claim 5. When the recitations of Claim 6 are considered in combination with the recitations of Claim 5, Applicant respectfully submits that dependent Claim 6 is also patentable over Applicant's Figure 3 in view of Six et al.

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Claim 7 recites an ignition system that includes "a burner for producing a flame...a power supply...an electrical system comprising a ground conductor...an ignition module comprising a first input, a second input, and a single output, said output operatively coupled to said burner, one of said inputs coupled to said ground conductor, the other of said inputs coupled to said power supply...and an isolation transformer connected between said power supply and said ignition module".

Neither Applicant's Figure 3 nor Six et al, considered alone or in combination, describe or suggest an ignition system recited in Claim 7. Moreover, neither Applicant's Figure 3 nor Six et al, considered alone or in combination, describe or suggest an ignition system that includes an ignition module having a single output operatively coupled to a burner or an isolation transformer connected between a power supply and an ignition module.

Rather, and in contrast of the present invention, Applicant's Figure 3 illustrates the neutral conductor is connected only to the ignition module and is not grounded, and Six et al. describe that the ignition module includes two inputs and two outputs wherein the first output is input to the igniter, and the second output is grounded. Six et al. also describe a single transformer that is connected between a generator and a switch. Furthermore, Applicant respectfully submits that it would not be obvious to add a second transformer to Six et al. without increasing the cost of the device, nor would it be obvious to remove the existing transformer (6) without redesigning the detector which would also increase the cost, since Six et al. teach a transformer operating a high frequency only in the detector side of the circuit facilitates reducing costs and reducing an operating power of the transformer. Since, Six et al. do not describe that the input to the ignition module is grounded, nor does Six et al. describe a single output from the ignition module which is electrically connected to the igniter, or a transformer between the power source and the ignition module, Claim 7 is patentable over Applicant's Figure 3 in view of Six et al.

Claims 9 and 10 depend from independent Claim 7. When the recitations of Claims 9 and 10 are considered in combination with the recitations of Claim 7, Applicant respectfully submits that dependent Claims 9 and 10 are also patentable over Applicant's Figure 3 in view of Six et al.

Claim 11 recites "an ignition system comprising a gas burner...an AC power supply comprising a phase conductor and neutral conductor...an electrical system comprising a ground conductor... an isolation transformer comprising a primary winding and a secondary winding, said primary winding connected to said phase conductor and to said neutral conductor, said secondary winding comprising a phase conductor and a neutral conductor...and an ignition module comprising a first input, a second input, and an output, said output electrically connected to an igniter, one of said inputs coupled to said ground conductor and said secondary winding neutral conductor, the other of said inputs coupled to said secondary winding phase conductor."

Neither Applicant's Figure 3 nor Six et al, considered alone or in combination, describe or suggest the ignition system recited in Claim 11. Moreover, neither Applicant's Figure 3 nor Six et al, considered alone or in combination, describe or suggest an ignition system that includes an ignition module having a first input connected to a phase conductor of a transformer, a second input connected to a ground conductor, a neutral conductor of a transformer, and a burner, and an output connected to an igniter.

Rather, and in contrast of the present invention, Applicant's Figure 3 illustrates the neutral conductor is connected only to the ignition module and is not grounded, and Six et al. describe that the ignition module includes two inputs and two outputs wherein the first output is coupled to the igniter, and the second output is coupled to the burner and ground; and a separate transformer is connected between a generator and a switch. Furthermore, Applicant respectfully submits that it would not be obvious to add a second transformer to Six et al. without increasing the cost of the device, nor would it be obvious to remove the existing transformer (6) without redesigning the detector which would also increase the cost, since Six et al. teach a transformer

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operating a high frequency only in the detector side of the circuit facilitates reducing costs and reducing an operating power of the transformer. Since, Six et al. do not describe that the input to the ignition module is grounded, nor does Six et al describe a single output from the ignition module which is electrically connected to the igniter, or a transformer between the power source and the ignition module, Claim 11 is patentable over Applicant's Figure 3 in view of Six et al.

Claim 12 depends from independent Claim 11. When the recitations of Claim 12 are considered in combination with the recitations of Claim 11, Applicant respectfully submits that dependent Claim 12 is also patentable over Applicant's Figure 3 in view of Six et al.

For the reasons set forth above, Applicant respectfully requests that the Section 103 rejections of Claims 1, 3-7 and 9-12 be withdrawn.

Regarding newly added Claim 13. Applicant respectfully submits that Claim 13 depends from Claim 1 which is in condition for allowance. Accordingly, Applicant respectfully submits that Claim 13 is in condition for allowance.

In view of the foregoing amendments and remarks, all the claims now active in this application are believed to be in condition for allowance. Reconsideration and favorable action is respectfully solicited.

Respectfully Submitted,

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